CHARGE NUMBER : 2306

PROJECT TITLE : Flavor Transfer

PROJECT LEADER: R. M. Ikeda

PERIOD COVERED: March 1-31, 1977

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I. Smoke Flavor

A. Sulfur Compounds[1]

Selected fractions separated from smoke condensate reported last month were further separated by TLC using less polar (benzene) and more polar (acetone) developing solvents. Only minor differences in the resolution of the sulfur containing compounds were observed. A stainless steel (SS) GC column was packed for use in GC/MS identification. The SS column was made to match as closely as possible the glass column used in this study. Two of the sulfur containing compounds were adsorbed when separated on the SS column but the remaining sulfur containing compounds were not affected. A neutral fraction from smoke condensate was separated on TLC for GC/MS identification. The three eluted fractions were rechromatographed but only minor improvements in separations were observed. These fractions will be used for GC/MS identification.

B. Sidestream and Cigarette Butt Odors[2]

A program was started to measure sidestream odor and to reduce cigarette butt odor. An apparatus for measuring sidestream odor is being designed by the Engineering Group. Cigarettes were prepared with 0, 10, 20 and 50 mg of carbon in the filters to determine its effect on cigarette butt odor. These cigarettes were machine smoked and butts subjectively evaluated for odor. The odor intensity of the butts decreased with increasing amounts of carbon. Cigarettes were also prepared with CA filters overwrapped with Ecusta carbon paper with the intention of reducing butt odor but not gas phase components. No conclusive effect on butt odor was observed.

II. Casings and Flavors

A. Filler Sweep Analyses[3]

Filler sweep analyses were run on samples of Kent, Kent Golden Lights, Decade, Decade Menthol and Marlboro cigarettes.

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The chromatogram from Kent and Kent Golden Lights were almost identical while each of the other cigarettes had at least seven or more enhanced or unique peaks. Filler sweeps analyses were also carried out on uncased burley and bright filler and on ET. A number of differences were noted in the chromatogram of each sample. Further samples will be run to determine if these differences are characteristic of each tobacco. Capillary GC/MS runs were carried out on the commercial cigarette samples to identify their characteristic component.

B. Aftercut Markers[4]

Because of the insolubility of the hydrocarbons in the aftercut, other compounds which can be separated as a group were investigated. Benzoic and toluic acids were tried as markers but these acids are already present in tobacco. Trimethylphenols appear to serve as suitable markers since these compounds elute in a relatively clear area in the GC scan of the phenolic fraction extracted from cigarette filler. Addition at 5 ppm can be easily detected. Cigarettes are being made with these markers to evaluate the samples both subjectively and analytically.

III. References

1. Notebook #7090; Pages 13-28.

2. Notebook #7104; Pages 1-20.

3. Notebook #6995; Pages 55-64.

4. Notebook #6927; Pages 94-100.
Notebook #7118; Page 1.

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